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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,600	02/20/2004	Jae C. Schwartz	12671-029001	1552
26181	7590	06/15/2005	EXAMINER	
FISH & RICHARDSON P.C. PO BOX 1022 MINNEAPOLIS, MN 55440-1022			JOHNSTON, PHILLIP A	
			ART UNIT	PAPER NUMBER
			2881	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/783,600	Applicant(s) SCHWARTZ, JAE C.	
	Examiner Phillip A. Johnston	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10-12-2004</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Claims Rejection - 35 U.S. C. 102

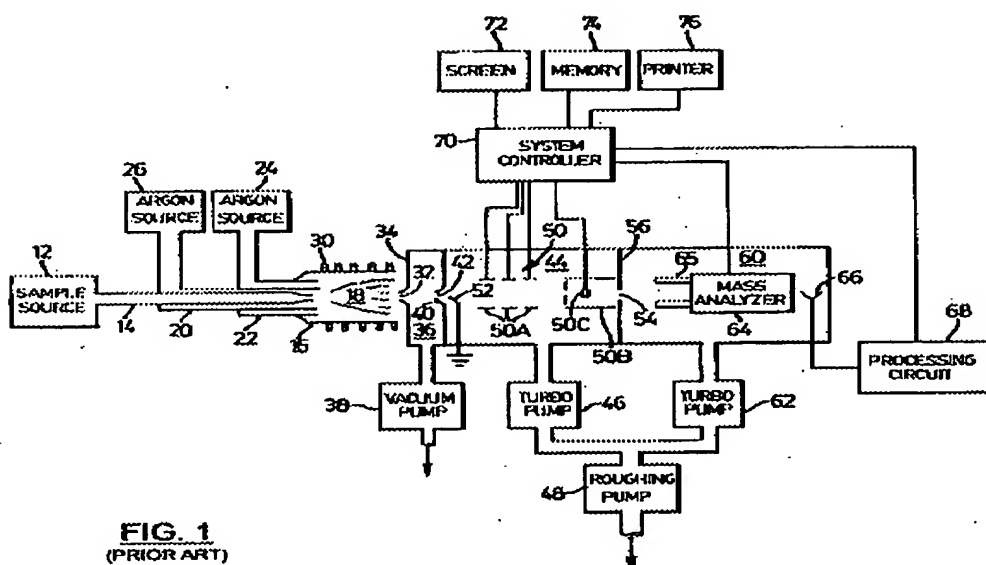
1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2,8, and 15-22 are rejected under 35 U.S.C. 102 (b) as being clearly anticipated by Buckley, U.S. Patent No. 5, 463,219.

Buckley (219) discloses;

(a) A conventional inductively coupled plasma mass spectrometer (ICP-MS) that includes a sample source 12, which supplies a sample contained in a carrier gas (e.g. argon) through a tube 14 into a quartz tube 16 which contains a plasma 18, ion optics 50, a mass analyzer 64 which is typically a quadrupole mass spectrometer but may be a different form of mass analyzer, e.g. an ion trap. Ions passing through the mass spectrometer 64 are detected by electron multiplier detector 66, the output of which is processed by a processing circuit 68, as recited in claims 1, and 15-18; See Column 5, line 20-67; Column 6, line 1-22; and Figure 1 below;



(b) FIGS. 14A to 14E show calibration curves 302 to 310 for the substances cadmium, cerium, copper, magnesium, and rhodium respectively. In each case analog intensity is plotted on the vertical axis and pulse counts are plotted on the horizontal axis. The curves 302 to 310 are each measured at a number of points in the overlap region 134 again determined by ramping the lens 50, and a straight line is fitted through the resultant points. The slope of the line is determined and the gain is computed from the slope. The quality of the line is visually displayed as well as indicated by the correlation coefficient. The resultant gain values are then plotted against mass as shown in FIG. 15 to yield a gain curve 312. From curve 312 the instrument can determine the relationship between gains and masses at positions between the measured points (e.g. by interpolation), as recited in claims 1,2,8, and 19-22. See Column 16, line 45-62; Figure's 14A-14E; and Figure 15 below.

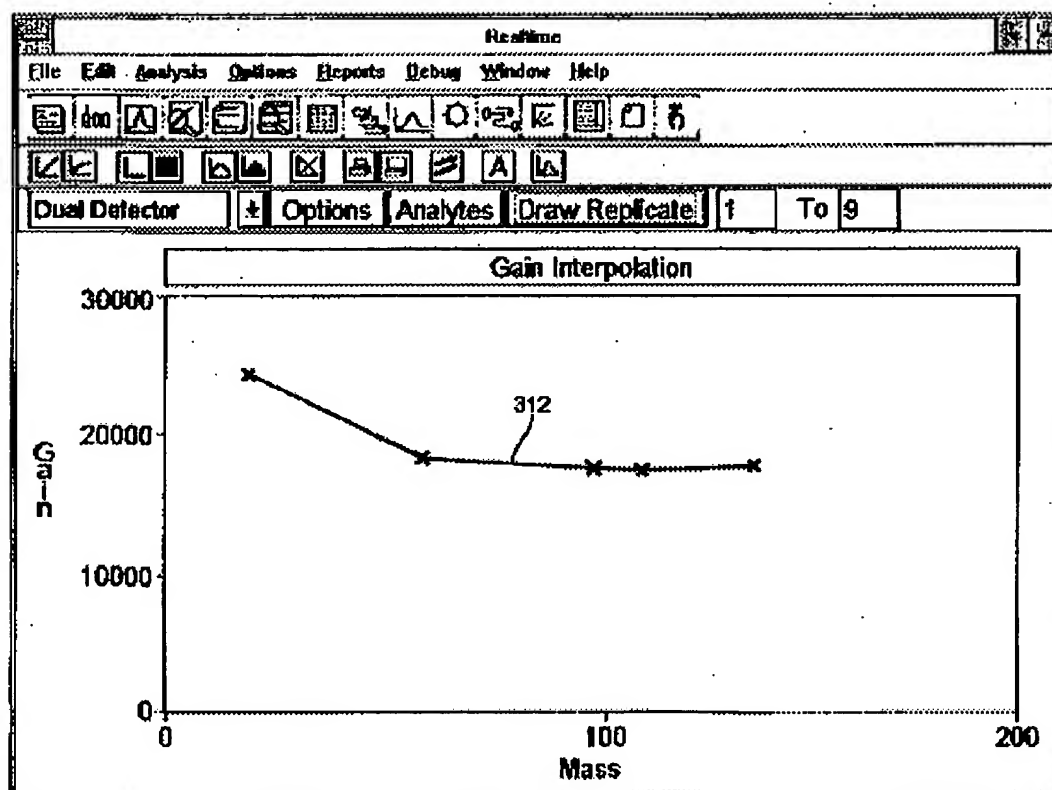
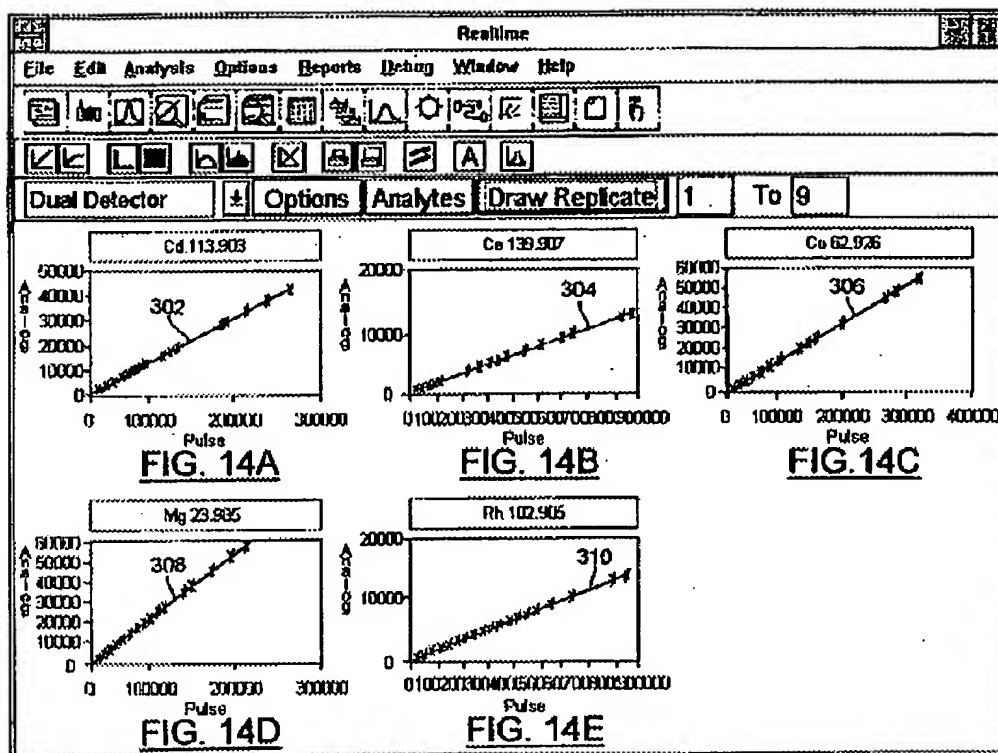


FIG. 15

Claims Rejection – 35 U.S.C. 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-7, 9-13, 23-33, and 35-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,463,219 to Buckley, in view of Shimomura, U.S. Patent No. 6,265,714.

Buckley (219) describes source 12, as used in U.S. Pat. No. 4,746,794 (French et al.), which is an unstable atmospheric ion source, as recited in claims 9-13, 31-33, and 36. See Column 5, line 23-27; and line 58-60 in Buckley (21); as well as, Column 3, line 61-68; and Column 4, line 1-17 in French (794).

Buckley (219) as applied above discloses nearly all the limitations of claims of claims 3-7, 23-28, 39 and 40, but fails to teach calculating gain or number of ions based upon formulas, as recited in claims 3-7, 23-28, 39 and 40.

However, Shimomura (714) discloses that after the specified number of sampling has been completed, the control unit 20 reads out the stored intensity data and obtains therefrom the average intensity and the standard deviation, as well as their ratio (hereinafter referred to as the "deviation-to-average ratio"). These numerical data are

also stored in the memory device 21 so as to serve as the data for determining the detector degradation, as recited in claims 3-7, 23-28, 39 and 40. See Column 4, line 34-47.

Therefore it would have been obvious to one of ordinary skill in the art that the mass spectrometer apparatus and method of Buckley (219) can be modified to use the standard deviation method of Shimomura (714), to provide means for monitoring the level of degradation of a detector, thereby providing means for monitoring the stability of a mass spectrometer.

It is implied herein that calculating gain and number of ions from the slope of the intensity vs. ion pulse count curve as described above in Buckley (219) is equivalent to the use of formula's, as recited in claims 3,5,7,23,25, and 27.

5. Claims 14 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buckley (219) and Shimomura (714), and in further view of Kammei, U.S. Patent No. 6,674,068.

The combination of Buckley (219) and Shimomura (714) fails to disclose the use of a pulsed analyzer, as recited in claims 14 and 34. However, Kammei (068) discloses the use of an inductively coupled plasma source in a pulsed TOF mass spectrometer to measure ion intensity and control detector gain, as recited in claims 14 and 34. See Column 5, line 41-67; Column 1, line 1-11; and Column 9, line 1-11.

Therefore it would have been obvious to one of ordinary skill in the art that the mass spectrometer apparatus and method of Buckley (219) and Shimomura (714) can be modified to use the standard deviation method of Kammei (068), to provide means

for storing an output signal from an ion detector indicative of the ion pulses together with information about the gain during detection such that the stored signal is correlated to the stored information about the gain.


Conclusion

6. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (571) 272-2475. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor John Lee can be reached at (571) 272-2477. The fax phone number for the organization where the application or proceeding is assigned is 703 872 9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PJ

June 7, 2005


JOHN R. LEE
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